Capital structure and determinants of capital structure, before, during and after the 2008 financial crisis: A South African study.

By

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Dedication

To my three beautiful daughters, Zogcobo (Zozo), Achuma (Chumchum), and Baby Azole (Azo,AZ). My source of strength and the reason to work extra hard.

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“I Can Do All Things Through Christ Who Strengthens Me” (Philippians 4:13). I give all the Glory to the Almighty God, for the Wisdom He gave me to even embark on this journey, when all doors seemed locked.

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Abstract

This study examines the effects of 2007/8 financial crisis on capital structure determinants of Johannesburg Stock Exchange (JSE) listed companies in South Africa.

Data extracted from INET BFA Expert database was analyzed using regression models on the correlation between the leverage and company size, growth, profitability, tangibility, liquidity, non-debt tax shield along with Ordinary Least Squares based on the sample of JSE listed companies for the period of 2004 to 2013. The study examined two industries namely, Real estate and Retail industry. The results show that size, tangibility, profitability and liquidity have significant impact on the capital structure before, during and after financial crisis. Growth results were inconsistent over the period under review, and non-debt tax shield was found to be statistically insignificant. The study also shows that the 2007/8 had statistical significance on the capital structure of the listed companies in South Africa.

Key words: Capital Structure, leverage, financial crisis, debt, determinants, Ordinary Least Square.

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1. INTRODUCTION

1.1 Background to the study

Globalisation took major transition in the world for the past two decades. Various developing countries acquired acknowledgment during this gradual process and begun to take part in economic development of other countries (Akin and Kose, 2008). South Africa, for example, became part of the international economy in the early 1990s - a period during which globalisation was becoming more prominent. Upon entering the global economy, South Africa went through major policy reforms and trading partnerships with countries in the rest of the world in order to gain entrance into their markets. However, the opening up of the South African economy also subjected south African companies to greater competition from companies from the rest of the world. Albeit being a developing economy faced with greater challenges and increased competition in a globalised economy, South Africa realised economic growth as a result of globalisation for the period between 1990 and 2000 (Akello, 2013).

Despite the economic growth observed between 1990 and 2000, South Africa's economy also went through some turbulences, most of which were as a result of the contagion effects of globalization. For example, the crumble of Lehman Brothers in the United States of America (US) in September 2008 had a huge impact on financial markets across the world including South Africa (Demirguc-Kunt, Martinez-Peria and Tressel, 2015). Although, the crisis began as a US crisis, like a veld fire, it spread swiftly across both developed and emerging markets. Its impact spread through worldwide financial markets, international banks and trade links, and it affected many economic sectors globally. The impact of financial crisis on global markets, arguably suggests that businesses had to alter their investing and financing decisions in order to counteract or adjust to financial and economic instability caused by the financial crisis. For instance, the instability caused by the financial crisis potentially suggests that companies had to alter the mix of debt and

equity that they used to finance their current assets or had to use when considering financing options for new investment opportunities.

Based on the above point of view, it could be argued that incidents such as a financial crisis provide an opportunity to explore or examine the impact of financial and macroeconomic instability on the firms' capital structure. Theoretically, an excessive use of debt can expose a firm to unacceptable levels of risk, while a conservative debt policy may limit the opportunity for the leverage effect to increase wealth. As such, this argument makes capital structure to be a crucial topic in corporate finance for both practitioners and academic researchers. Numerous extant studies have been conducted in the recent years to describe the disparity in leverage ratios across firms based on capital structure theory.

Capital structure theory propose that, firms decide on what is referred to as a target leverage ratio; a rationale that is built on various trade-offs between costs and benefits of using debt in the form's capital structure. The modern theory of capital structure was introduced by Modigliani and Miller (1958). Subsequent to the work of Modigliani and Miller (1958) on the capital structure, three conflicting theories of capital structure have been built. They are namely: static trade-off theory (Bradley et al., 1984), pecking order theory (Myers and Majluf, 1984), and agency cost theory (Jensen and Meckling, 1976). These theories have since formed the theoretical foundation of the numerous studies on the determinants of capital structure decisions made or adopted by firms. In a similar vein, this current study utilises the trade-off theory and perking order theory only as theoretical filters to examine the determinants of capital structure decisions in a developing economy, using South Africa as the location of the study.

1.2 Research objectives and study motivation

Empirical studies conclude some facts about the choice of the capital structure, but it is unclear how these facts are related with different theories, also called the gap (Rajan and Zingales, 1995). Although some studies have been conducted in the context of developing countries with similar characteristics, few studies have been conducted in emerging economies with different characteristics. Rajan and Zingales (1995) were the

first to scrutinize the gap between theory and empirical results, based on the G-7 countries (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) using various determinants of capital structure. This current study builds on the study conducted by Rajan and Zingales (1995) except that it is segmented over three different periods, that is, the period before, during and post the crisis. The segmentation of the entire period into the before during and after the financial crisis allows this study to isolate the influence of the financial crisis in order to determine if it has had an impact on the firm's capital structure.

Thus, owing to the above, the objective of this study is to examine the effect of 2008 financial crisis on capital structure and the determinants of capital structure of South African listed firms during the period before, during and after the crisis. This study is motivated by several reasons. Although there are South African studies have been conducted on the effects of the 2008 financial crisis on capital structure and determinants of capital structure, many of these studies have failed to examine industry specific effect of the financial crisis on capital structure and capital structure determinants. In addition, the results derived from the study of South African listed firms are generalized to the top 40 JSE listed firms and this leaves gap which might be very important. Although an enormous amount of research conducting capital structure determinants exist, a study using South African data set is inadequate. In light of developing countries perspectives, a research examining capital structure in the South African context is undoubtedly imperative. There are certain limitations to the existing literature on impact of financial crisis on firms' capital structure. Furthermore, due to limited availability of data, industry specific studies on listed firms have largely been neglected.

1.3 Research question

Owing to the research objectives and motivation discussed above, this study seeks to answer the following research question:

- Did the financial crisis impact the capital structure decisions of the retail and real estate industries in South Africa?

1.4 Research method and results

Data extracted from INET BFA Expert database was analyzed using regression models on the correlation between the leverage and company size, growth, profitability, tangibility, liquidity, non-debt tax shield along with Ordinary Least Squares based on the sample of JSE listed companies for the period of 2004 to 2013. The study examined two industries namely, Real estate and Retail industry. The results show that size, tangibility, profitability and liquidity have significant impact on the capital structure before, during and after financial crisis. Growth results were inconsistent over the period under review, and non-debt tax shield was found to be statistically insignificant. The study also shows that the 2007/8 had statistical significance on the capital structure of the listed companies in South Africa.

1.4: Study structure

The remainder of this study is organized as follows. Chapter 2 explores theories of capital structure and reviews previous related empirical studies on the topic. Chapter 3 provides the research methodology and outlines the procedure used for selecting the study sample and the source(s) of data used in the study. In addition, the empirical models are also specified in this chapter, including the definitions of variables, measurement of variables and the control variables included in the model. Chapter 4 provides an analysis of the data and outlays the regression results. The descriptive statistics of the data are briefly examined as well as the correlations among variables included in the models for each period before, during and after the 2008 financial crisis. In chapter 5 the study is summarized and avenues for further research on the topic are provided.

2. LITERATURE REVIEW

2.1 Introduction

The capital structure choices of companies play a huge role in company value or its cost of capital. Each company decides on its target capital structure given management's consensus, as it is easy for the management to identify significant fundamentals for such decision. However, it is a challenge to measure such significant fundamentals, as there are no simple methods (Ross, Westerfield, Jordan and Firer, 2001). Therefore, the literature associated with capital structure is revised to discover whether there is nonconformity between existing capital structure and financial crisis impact theories and the capital structure practice in industry specific listed companies in South Africa.

This literature review will refer to capital structure theories progressed in the literature in conjunction with empirical proof to back those theories. The review will concentrate on the two contradictory theories of capital structure such as trade-off theory and pecking theory which lay ground work for this study. The literature will also review the impact of the financial crisis globally and within South Africa. This impact will also be reviewed with reference to the capital structure determinants in developed, emerging-developing economies and empirical study in the South African context.

2.2 Optimal capital structure.

Optimal structure of leverage ratio is realised on low cost of capital and maximised firm value (Firer et al., 2004 and Erhardt and Brigham, 2003). Myers (1984) rejects the view and points out that different capital structure theories fail to explain the actual financing behaviour and therefore despise the advice to firms on optimal capital structure. Various studies validate the positive correlation between optimal capital structure and firm value maximisation. Ward and Price (2006) show that shareholders returns is positively influence by debt to equity ratio in a profitable business, and this ratio poses more risk. A direct correlation between leverage and firm is supported by Sharma (2006). Lasher (2003) claims that increased debt levels can lead to increased share value and return on equity. According to De Wet (2006) it is evident that a remarkable increase in value can

be realised through drawing nearer to the optimal level of gearing. Fama and French (2002) suggest a positive correlation between leverage ratio and firm profitability which is in contrary to Rajan and Zingales (1995) who discovered a negative relationship between debt and profitability. Beattie, Goodacre and Thomson (2006) challenges the academic work on capital structure, claiming limited practical applications on capital structure theory. Furthermore, there are arguments that challenge the view on whether the capital structure impact the value of the firm or whether firm value affects the capital structure. Margaritis and Psillaki (2007) discovered that efficiency and leverage are negatively correlated. In support of the above finding, they argued that the positive influence of efficiency on leverage applies at low-to mid-debt levels while negative influence applies at high debt ratios. Lastly, Myers (2001), in support of his theory on optimal capital structure in 2001, argues that, “there is no universal theory of the debt-equity choice and no reason to expect one” (Myers, 2001, p.81).

2.3 Theories of capital structure

The first study on capital structure by Modigliani and Miller (1958) indicated that firm’s value is not affected by capital structure. This argument is based on perfect market (where firms do not incur transaction costs, do not pay taxes and information is free of errors and full competition). In reality perfect market does not exist which led Modigliani and Miller (1963) to relax some of their assumptions and incorporated corporate taxes in their model. In their study, Modigliani and Miller (1963) observed that as debt is tax deductible and that the value of the firm increases with increase in leverage. Miller (1977) added personal taxes and stated out that interest income earned on debt is generally taxed as personal income tax while equity earned income (generally dividends and capital gain) is taxed at lower rate and tax on capital gain can be paid on sale of shares.

From a theoretical point of view, the trade-off and pecking order theory are the most adopted and supported theories by various studies, although some studies also include agency theory.

2.3.1 Trade-off theory

The trade-off theory was established by Kraus and Litzenberger (1973). The theory is rather viewed by various authors as traditional which stems from two school of thoughts, namely; fundamental and Modiglian-Miller. The fundamental part of the theory assumes identical or similar financial gearing for firms in the same industry as they try to maximise tax savings (Abosede, 2012).

Tax savings is one of the advantage for trade-off theory. The effective cost of debt through tax advantage is less than nominal cost, and that results in lower average weighted cost of capital and eventual boost in firm value. However, this condition exist for as long tax advantage is not outweighed by bankruptcy cost through increased debt levels (Abosede, 2012).

In 1963 Modiglian and Miller rejected this view as they claimed that there is no interdependency between firm value and its capital structure when they used the operating income approach on valuation. This approach was modified years later by removing the assumption of zero corporate tax. It was proved that companies with high cost of debt pay less on tax. Abosede (2012) proposed that, as debt levels increase, the weighted average cost of capital decreased to a certain limit and subsequently improved firm value.

The trade-off model pin points the most favourable financial leverage in the trade-off between high debt benefits and business risks. According to Meyer (1984) in the static trade-off theory, the most favourable capital structure is realised when the tax advantage to borrowing is balanced, at the margin, by the cost of financial stress. Consistent with the above, Kraus and Litzenberger (1973) suggested that debt should be acquired to balance bankruptcy costs and tax savings.

2.3.2 Pecking order theory

Abosede (2012) describes pecking order theory as behavioural in nature, thus, presenting attitude and insight of managers in financing decision making. Abosede (2012) claims that firms' managers, based on their skills and experiences assume funding choices that will minimise the conflict between managers and shareholders rather than addressing the concerns of adverse selection and moral hazard. According to Meyers and Majluf (1984) the theory stems on the view that information between managers and investors is asymmetric. In that view, managers are argued to have better knowledge on the firm value and its riskiness as opposed to external investors who have limited knowledge. The argument is also supported by Butt, Khan and Nafees (2013) who argued that the need for the pecking order theory becomes of great importance as investors are faced with challenges in choosing between external and internal funding due to information asymmetry.

Cotei and Farhat (2009) opined that, to prevent the underinvestment problem due to information asymmetry, managers will opt to fund new projects with assets that are not undervalued by the market such as internal funds or low cost debt. Consistent with that notion, Abosede (2012) argued that firms tend to rely on internal funds and would prefer debt to equity when external funding is necessary. However, Abosede (2012) argued that the perking order theory applies under certain conditions. For instance, Abosede (2012) opined that, the firm should be profitable and should have been in existence for a long time (i.e. should have a history) for the pecking order theory to apply. Consistent with the above argument, Butt, et al., (2013) argued that if firms require funding, their first preference should be retained earnings.

According to Abosede (2012), the primary objective of the pecking order theory is to ensure a retention of current ownership structure and to provide an assurance that the firm's managers are pleased with shareholders' confidence, which is also consequently argued to result in the enjoyment of better returns by shareholders. In addition to the aforementioned, Butt et al (2013), also argued that the benefits of using's internal funds the firm will not incur flotation costs and will not have to disclose confidential information

to external investors. Furthermore, Butt et al (2013) pointed out that one of the main benefits of the pecking theory is that it proves that managers are determined to be in control of the firm.

However, the pecking theory comes with its shortcomings as pointed out by Butt, et al., (2013). Firstly, it fails to address the effect of taxes, cost of issuing new securities, agency costs, financial distress which affect investment opportunities. Secondly it fails to notice the challenges related to financial managers' decision to accrue considerably financial limp that they tend to be more protected to market discipline. Because of such limitation pecking order theory is rather viewed as complement than a replacement for trade-off theory.

Empirically, the Butt, et al., (2013)'s findings support the pecking order theory, as all variables used (size, tangibility, profitability, liquidity and capital intensity) had a negative correlation with leverage which proves that most companies in the leasing sector they studied used retained earnings rather than debt or equity.

2.3.3 Agency costs theory

The concept of agency costs was developed by Jenses and Meckling (1976) and applies in a context of financial economics. Agency problem ascend due to the relationship between equity-holders or managers and debtholders (Abor and Biekpe, 2006). This relationship is rather named principal-agents relationships. The agency problem is premised on the notion that, the agent (who is the manager) might opt to not act to the best interest of the principal (who are the shareholders) which is wealth maximisation.

Jensen and Meckling (1976) recognized two types of clashes, firstly one between shareholders and debtholders as a result of moral hazard, secondly between shareholders and managers. According to Abor and Biekpe (2006) clashing views may arise between debtholders and shareholders as they have different claims in the business. Equity-holders have a residual claim on the companies' cash flows, whereas debt holders have fixed claims such as interest over the company's cash flows. Jensen and Meckling (1976) argue that clashes between equity-holders and debtholders claimants are such that equity-holders invest in riskier projects that are held in existing

portfolios, which subsequently results in an expropriation wealth from debtholders. However, the shortcomings of the agency costs theory are that debt-holders are exposed to default risk if the project fails, and will not benefit if the project becomes successful, whereas shareholders will benefit from the profitability of the project at the expense of debt-holders who will only receive a fixed interest amount.

On the other hand, the conflict between managers and equity-holders, according to Jensen and Meckling (1976) ascend due to manager's ownership being less than 100%. One of the shortcomings identified by Abor and Biekpe (2006) managers is may invest in projects which result in decrease on company value but boosting their control over company resources.

Jensen (1986) suggested that this challenge could be reduced by increasing shareholding by managers or increase debt in the capital structure. This would reduce unused amount of cash available to managers and ultimately benefit debt financing. Jensen and Meckling (1976) claim that an optimal capital structure can be obtained through trading off the agency cost of debt against the benefits of debt. However, it should be noted that in any cooperative effort, the agency costs will always arise.

2.4 Empirical studies on determinants of capital structure in normal economies

There is a plethora of existing studies that examined the determinants of capital structure decision (debt or leverage ratio) by firms. The major determinants of capital structure investigated in prior studies are growth opportunities, profitability, firm size, tangibility of assets, amongst a host of other factors. Empirical studies have mostly identified the following as determinants of capital structure; Size of the business, growth of the business, profitability of the business, tangibility of assets, corporate taxes; non-debt tax shield and liquidity.

2.4.1 Size

Firms size has become such a monotonous control variable in corporate finance, that it is not thoroughly discussed in most papers. Empirical findings by Alexander (2005) and StrebulaevIlya (2006) show that large firms tend to have high leverage ratios compared

to small firms. The agency theory shows a positive correlation between size and agency costs, in which case bigger firms have higher agency costs relative to small firms (Jensen and Meckling, 1976). For example, if a company issues or obtains debt, its management would be scrutinised more by external stakeholders (Ibrahimo and Barros, 2009). Owing to the increased scrutiny by external stakeholders, managers will be faced with a huge challenge when setting their own goals, which in turn results in a minimisation of the agency problem. Based on the above viewpoint, the agency theory posits a positive correlation between size and leverage. However, empirical studies have produced conflicting results. For example, while Rajan and Zingales (1995) show that the size is positively correlated to capital structure, Ferri and Jones (1979) show that that there is no correlation at all. An earlier study by Timan and Wessels (1988) show that there is a positive correlation between size and capital structure. Consistent with Tim and Jones (1979), Deesomak, Paudyal, and Pescetto (2004) found that firm size, non-debt tax shield and liquidity were all important attributes in capital structure decision in the East Asian financial crisis of 1997.

De Haas and Peeters (2004) argued that big firms are well diversified in such a way that they face lower bankruptcy costs. In their study, De Haas and Peeters (2004) also argued that the big firms' fixed bankruptcy costs make up only a smaller portion of firm value which results in lower costs of financing.

There is a correlation between size and the value of assets held. Thus, larger firms are perceived and expected to have more assets. Various studies on the determinants of capital structure have utilised this proxy to measure size. Similar studies have used the logarithm of sales or net sales to capture the effect of size (Barclay and Smith, 2005; Rajan and Zingales, 1995; Titman & Wessels, 1988). In addition to the above, firm size matters in the context of capital structure context for the following reason, in the case where non-trival costs of raising external funds exists, large firms have low cost access to external funding (Rajan and Zingales, 1995; Titman & Wessels, 1988). An alternative view is also that size may be a portion for the default probability. Furthermore, recent studies view that larger corporations are hard to fail or liquidate (Barclays and Smith, 2005). Similarly, according to Alexendar (2005) and StrebulaevIlya (2006), information

asymmetry between insiders and capital markets, are argued to be lower for larger firms as these firms are faced with more scrutiny by investors and other stakeholders

2.4.2 Growth

Current literature confirms that there exists a relationship between growth and capital structure. However, the direction of this relationship is not the same as defined in diverse theories. The agency theory stems on the argument that firms with high growth opportunities are likely to retain financial flexibility in order to be able to borrow more in subsequent years predicting a negative relationship between growth and leverage (Myers 1977; La Rocca et al. 2009), which confirms that firms' growth and leverage are negatively correlated (Rajan and Zingales, 1995; Titman and Wessel, 1988). Pecking order theory supports this argument in which internal funds are used to finance a new investment. Trade of theory claims negative relationship between growth opportunities and leverage. The view in support of this, is that in fast growing firms, the agency costs of debt are high and their equity-holders are allowed an opportunity to select investments and thus take wealth from banks and bond holders (Titman and Wessels 1988). Thus, a company with worthy opportunities for advancement would be less likely to issue debt to fund projects due to the high financial anguish costs, and the fact that intangible assets would be worthless in the case of bankruptcy (Harris and Raviv 1991).

In contrast the agency theory argues that managers put their goals first to those of the firm. That is, they will maximise their utility first, and later that of the stakeholders (Jensen and Meckling, 1976; Titman and Wessels, 1988). Based on this view, the agency theory postulates a positive correlation between growth and leverage. Furthermore, according to pecking theory, growth opportunities can be positively correlated with leverage. Thus, companies that are faced with worthy investment opportunities, but have less internal cash flows would use debt as first source of funding, which subsequently results in a high leverage. Nonetheless, it could be argued that, as firms with higher growth opportunities show better information asymmetries, they will discover that high-debts are a sign of quality of their investments.

The growth opportunities can be associated with financial crisis. Bailey and Elliot (2009) propose that growth is minimal or non-existent for few quarters during the financial crisis period.

This study draws signal from Titman and Wessels (1998) and Anarfo (2015), among other studies, in defining growth as such; the rational being that the higher the growth rate, the higher the growth prospects of the firm. Another definition that has also been employed widely in empirical studies would have been to proxy growth prospects with the market-to-book value ratio (Booth et al., 2001; Frank and Goyal, 2009). However, due to scant availability of market value data the alternative definition could not be employed.

2.4.3 Profitability

Profitability drives the capital structure which is often covered by various theories and researchers. Two main theories of capital structure have opposing views on correlation between capital structure and profitability. According to trade-off theory, a more profitable (pre-tax) firms tend to demand more debt to aid as a tax shield. In addition, external equity holders may force management to use more debt in order to reduce the free cash flow from which managers may benefit from (Jensen, 1986). This results in a positive correlation between profitability and leverage.

Contrary to the above, and consistent with the perking order theory, Okzan (2001) argues that there is a negative correlation between profitability and leverage. Thus, if there exist large information asymmetries between firms and banks, banks having difficulties with distinguishing good from bad firms, may then increase their interest rates. Thus, owing to the above, the pecking theory postulates that firms will choose to finance with internal funds over external funding (Myers, 1984). Empirical findings by Rajan and Zingales (1995) and Titman and Wessels (1988) show that in the United States of America (USA), the effect of profitability on leverage is often negatively correlated.

However, a review of prior studies show that different measures of profitability have been used in empirical studies to determine the effect of profitability on leverage. This is partly because profitability is described in different ways. Boot et al. (2001) and Anarfo (2015),

among other scholars, for example, employed return on assets (ROA) as an indicator of profitability while other studies used other proxies such as return on equity.

2.4.4 Tangibility

Other studies argued that the selection of the type of firm's assets influences the capital structure. For example, Myers and Majluf (1984) argued that due to the costs that are associated with debt issuance as a result of information asymmetry problem; management is more informed than the external stakeholders. The costs can be minimised by issuing collateralised debt, as the collateral value is known. Thus, based on that notion, firms could have a chance to use assets as collateral which is to their advantage and issue more debt (Myers and Majluf, 1984). Empirically, Rajan and Zingales (1995) and Titman and Wessels (1998) found a positive correlation between tangibility and leverage. Myers and Majluf (1984) also show positive correlation. However, during a financial crisis, banks faced with liquidity and credit risks need more security on loans issued to firms (Berg and Kirschenmann, 2010). Thus, the requirement by banks of more security during a crisis suggests that the tangibility of the firm's assets becomes an important determinant of the capital structure decisions of the firm. According to trade-off theory, tangible assets are less complex to liquidate during bankruptcy, which in turn, is consequently agued to decrease the costs of financial ache (Jensen and Meckling, 1976).

Fixed assets provide collateral value. If collateral value is high, the firm would be viewed positively in the debt market. As such, it could access loans at reduced rates. Empirical studies used fixed assets to total assets ratio as a proxy for asset tangibility (see for example, Rajan and Zingales 1995; Frank and Goyal 2009; Mukherjee and Mahakud, 2010; Öztekin and Flannery, 2011).

2.4.5 Corporate taxes

The theory of Modigliani and Miller (1958) suggests corporate tax plays an important role in the determination of leverage. The tax savings attached to the interest tax shield attracts firms to take more debt. However, there has been different views on how the

corporate tax is determined. Widely conducted studies use the ratio of taxes paid to total taxable income and the observed evidence has, at most, been contradictory. Graham (2001) applied a refined simulation technique in an endeavor to find a more precise measure of the effective tax rate and found a positive relationship between taxes and leverage. However, Negash (2002) critically viewed the application of simulation technique to approximate the effective tax rate and argued that its use may not be suitable in situations where there is a change in the tax regime. In the same study, Negash (2002) observed a negative correlation between corporate tax and leverage in firms operating in a tax regime where firms are not progressively taxed. The findings by Negash (2002) were also supported by Abor and Biekpe (2005) in a study they conducted in Ghana.

Homaifar, Zietz and Benkato (1994) applied a common autoregressive spread lag model to examine Modigliani and Miller"s (1963) tax significance estimation for both the short run and the long run. Homaifar, Zeitz and Benkato (1994)'s findings confirmed a long run positive relationship between leverage and corporate tax albeit an absence of a substantial correlation in the short run.

Overall, the effort to determine the effect of corporate tax on leverage has to date produced inconclusive results, hence, leading to a continued debate on whether the tax shield benefit from using debt has an impact on the firm's capital structure decisions.

2.4.6 Non-debt tax shield (NDTS)

The existence of non-debt tax shields such as depreciation, operating losses carried forward and investment tax credits in a company's financial statements decreases the company's tax bill, thus reducing the effective tax rate. Leverage in capital structure of companies result in companies incurring both explicit and implicit costs. Brealey et al., (1995) explains these costs as follows; Explicit costs refers to the costs of debt (interest rate), and implicit costs is the costs of equity which is influenced by demand for high returns by equity holders on their investment for the inclusion of high risk debt on capital structure.

In a case where finance costs increase, the value of existing debt and equity reduce, but the percentage drop in equity value is greater than the drop in the value of debt which

leaves firm being viewed as highly leveraged. In support of this viewpoint, Frank and Goyal (2003) argued that an increase in the costs of debt increases leverage.

However, according to DeAngelo and Masulis (1980) companies with prospects to avoid tax through other related non-tax shelters such as investment tax credits, depreciation and tax loss carried forward have a lower tax advantage of debt.

In addition, DeAngelo and Masulis (1980) suggested that companies with higher non-debt tax shields are unlikely to take more debt, hence, leading to a negative correlation between non-debt tax shields and leverage. Empirical findings in different studies are mixed and inconclusive. However, the inconsistency in prior studies is not a concern since there exists two key motives for using debt as suggested by Barclay and Smith (2005). First, Barclays and Smith argued that companies with higher non-debt tax shields have higher composite of tangible assets in their balance sheet. As a result of the above, Barclays and Smith (2005) claim that this offers firms with a greater possibility to accumulate more debt. Thus, in that vein, non-debt tax shields may not only be a proxy for low taxes, but rather a proxy for low contracting costs associated with debt. Second, Barclays and Smith (2005) argue that firms with tax loss carry forwards are regularly in financial distress thus, the market value of equity for such firms would be wind-swept by growing the debt ratio. However, evidence it is not clear whether tax loss carry forwards are a reliable proxy for non-debt tax shields.

2.4.7 Liquidity

According to Malinić, Denčić-Mihajlo & Ljubenović (2013) capital structure theories state that there is a positive correlation between liquidity and the ratio of long-term debt to assets since companies with more liquidity get access to debt easily. Liquidity can be measured either based on the value of firm's assets or by selling price of the assets of company's entire life and it is used to determine the relevance of liquid assets (Morrellec, 2001).

Morellec (2001) points out that the relevance of liquid assets depends on the way they are measured – by the liquidation value of a firm's assets or by the selling price of assets

over the entire life of the firm. In a sample based on American firms, Sibilkov (2007) shows that more liquid assets tend to increase leverage.

According to pecking theory, using internal sources is viewed as the best form of finance. Liquidity is described as the ability to convert assets to cash quickly. According to Deesomsak, et al (2004) and Jong (2008), it is measured by the ratio of current assets to current liabilities. The quicker the company can convert its assets to cash, the less external finance is required for their business needs.

2. 5 Empirical studies on capital structure (CS) determinants in a financial or economic crisis.

2.5.1 International empirical studies on CS determinants in a financial or economic crisis.

Capital structure theory proposes that the degree of financial crisis's effect through high risk, uncertainty, or lower returns is dependent on the features of the financial system and the environment in which the firm operates (Demirguc-Kant, Martinez-Peria & Tressel, 2015). An empirical study conducted by Demirguc-Kant, Martinez-Peria & Tressel, (2015) suggests that the extent into which firms respond to financial crisis depends on country specific characteristics. For example, Demirguc-Kant, Martinez & Tressel (2015) argued that that firms in developing countries and high-income economies de-levered during the financial crisis as a result of decrease in the utilization of long-term debt finance. This was more pronounced for firms that could not get funding from capital markets.

Although information on capital structure for firms in developed countries readily available, there is a limited availability of such for firms operating in developing countries. Olayinka and Awolowo (2011), for example, points out that the determinants of capital structure for developing countries are affected by their distinctive legal, cultural and institutional features. In a similar vein, (Wald, 1999) adds that the legal and institutional structure is significantly different in developing countries. Vo (2016), also claims that capital structure determinants are unique in different economies. Consistent with this argument, Atkin and Glen (1992) suggests that firms in developing countries have limited access to funding due to less developed capital markets these firms operate in.

Furthermore, some researchers argue that firms in developing countries have less reliance on the retained earnings and more dependent on external source of funds (see for example, Saayman, 2010). Owing to this argument, to Saayman (2010) opined that less developed countries are vulnerable to the adverse effects of a financial crisis.

On the contrary, studies conducted in industrialised economies show that companies operating in those countries are dependent on retained earnings as their main source of funding. For instance, a study conducted by Mayer (1988) show that retained earnings amounted for a large percentage of investment in the UK. Similarly, a study conducted by Corbet and Jenkinson (1996) on Japan, US, UK and Germany found that internal funding was the dominant source of financing in the countries considered in their study. However, Rajan and Zingales (1995) argued that the results on whether the country has low or high leverage depends on the methodology used to measure leverage.

There is also an argument that the criteria used by banks to lend money to firms, particularly during a crisis is dependent on other factors. For example, Berg and Kirschenmann (2010, p21) argued that, during a financial crisis, the availability of credit to firms depends on the size and industry in which the company operates in. Thus, in situations where there is less credit from the banking side, banks would use the size of the firm as the criteria for issuing loans. The motivation for this approach is that large firms are deemed as more attractive to banks when granting credit as they provide banks with more comfort than does the small firms. Thus, in this view, size is considered as a key factor during a crisis as it is safer for creditors to grand credit to large firms.

Empirical evidence also shows that the firm's demand for loans funds during a financial crisis is dependent on the term of the loans. For instance, Khademi (2013) show that firms increased their long-term debt and reduced their short-term debt during financial crisis. On the contrary, Lim (2003) found that during the period post Korean crisis, big firms in Korea abandoned financial intermediaries and opted for capital markets. Similarly, over the same period Japan experienced major fluctuations in credit, which led to negative effect on financial leverage of Japanese' companies. Consistent with the findings in Korea and Japan, Balsari and Kirkulak (2010) found a negative effect on leverage ratios for Turkish firm as a result of 1994 Mexican Peso crisis. Contrary to the effect of the Mexican

Peso crisis in 1994 on leverage ratios, in the same study, Balsari and Kirkulak (2010) also observed that the 2001 and 2002 recession or economic down turn had a positive effect on leverage ratios in Turkey, as evidenced by an increase in short term debt which was accompanied by a reduction in equity.

However, the studies which were conducted for the period during the 2007 and 2008 financial crisis (see for example, Fosberg 2012, Kahle and Stulz, 2013) show that there was a huge reliance on public debt markets by firms during this period. Kahle and Stulz (2013) show that there was a hike on net debt issuance in the first year of crisis, which later declined after 2008. In their study conducted based on firms in the UK, Fosberg (2012) show that for the period pre and during the financial crisis (i.e.2006-08), UK firms experienced huge increase in debt ratios, followed by a gradual decline in these ratios until end of 2010 (post crisis period). Consistent with Fosberg (2012) Pattani, Vera, and Wackett (2011) also found similar results on the public debt on UK companies, as they reported a rise in issuance of public equity between 2008 and 2009 and decline thereafter. Pattani, Vera, and Wackett (2011) also noted that the motive for the increase in the issuance of equity prior to the crisis was for the repayment of bank loans as company managers viewed their companies to have high leverage (pre-crisis) while the motive for issuing equity post the financial crisis (i.e. the period between 2010 and 2011) was for financing new projects. Contrary to the above, Akbar, Rehman and Ormrod (2013) found that the financial crisis had no significant impact on the long-term debt financing in UK firms, albeit that it impaired the finance channels of the short term debt.

From a growth perspective, Baily and Elliot (2009) argued that during an economic decline, there would be minimal or no growth for a long period as in the case of financial crisis. They argued that, a financial crisis leads to less growth opportunities which consequently affects the firm's capital structure. Empirical studies show a decline in stock prices as GDP declined during the financial crises period (Chairmain, 2011).

2.5.2 South African empirical studies on CS determinants in a financial or economic crisis

The capital structure in the context of South African economy has been tested for a number of interesting reasons. Firstly, according to Gwaditzo, Ntuli and Mlilo (2016), South Africa is viewed as a developed emerging economy compared to its African counterparties. South African Johannesburg Stock Exchange is considered the greatest stock exchange in Africa. South African's capital markets are comparatively more advanced and assimilated with international market. Thus, the unique characteristics of the South African economy were argued to make it easy for South African firms, which follow international accounting standards to acquire funds from international markets.

According to Saayman (2010), during financial crisis, most the banks in South Africa were prevented from an investment in subprime as a result of foreign exchange restrictions. Thus, as a result, the international liquidity challenge affected South African money and capital market and availability of finance to a lesser extent. Despite the resilience of the South African financial system, the flight of capital in search for secured place impacted South Africa as foreign investors began to disinvest and withdrew their funds out of the South African market to secure their funds elsewhere. The drastic change in liquidity in addition to the capital market, also affected financial institutions and the private sector. Thus, in order to remain liquid, South African banks tightened their credit extension, and subsequently pushed money supply higher in the economy. The repo rate increased from 7% (2005) to 12 % (2008) to counter the inflationary pressures South Africa experienced. Along with inflation, short term and long-term interest on government bond began to rise to maintain positive real interest rate in South Africa. However, there was a decline in world demand and resources which led to decline in inflation and subsequently in 2009 repo rate decreased and thereafter the yield on both short-term and government bonds followed suit.

Subsequent developments since the beginning of the global financial crisis in the second half of 2008 still showed that developing economies are not self-sufficient. Despite being a developing and open economy tripped into the intricately woven into the 'fabric' of the global economy, South Africa's economy coped very well with the global crisis (Baxter

2017, p.112). The coping mechanisms put in place to cushion the South African economy against the global storm were low foreign debt levels, proper fiscal and monetary policies and a flexible exchange rate. Although the South African economy was not in overall recession, different industries were under pressure but they were able to be saved by proper counter-cyclical fiscal policy and the huge infrastructure investment programmes that were initiated in South Africa. South Africa's performance in comparison to other developing economies was better, where high levels of foreign debt and improper fiscal policy forced these economies to find International Monetary Fund (IMF) bail-outs. Overall, the South Africa's economy did well, albeit continuous rise in the challenges.

The reality is that, despite having the appropriate buffers, many sectors and many companies have moved into 'survival mode', which means they are focused on surviving the global crisis.

2.6 Summary

Based on the valuation of interconnected literature, it is proven that theories progressed fell short to clarify the manner in firms decide on capital structure. It is reasonable to propose that there other various economic variables not covered by these theories that have an impact on capital structure decisions. Graham and Harvey (2001) suggest that the weak backing from various capital structure theories shows that the assumptions and implications of these theories should be critically re-evaluated. It is also evident that previous studies produced mixed results on the impact of financial crisis on capital structure in different countries. As a result, this current study aims to shade light on the impact the 2007-2008 financial crisis has had on the capital structure decisions of the South African firms listed under the retail and real estate industries.

3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a framework of the methodology applied in conducting this study. It provides a detailed overview that explains the rational for using certain approach and challenges of the chosen approach. The study was conducted using both qualitative and quantitative analysis of secondary data.

Qualitative approach was applied by reviewing literature in order to back the theoretical outline of the study. The quantitative approach was used by extracting data from company financial statements as its use gradually became important and is now regarded an operative aid in resolving management challenges (Richard and Joel, 1992). This chapter also includes an explanation of the research process applied by providing a description of the research design, data collection procedure, sample collection and describing the empirical model employed.

Using the data that was available, the following determinants of capital structure were examined: size, growth, profitability and tangibility.

The research methodology utilised was explanatory research. This methodology is conducted to identify the extent and nature of cause-and-effect relationship. The study attempted to identify cause and effect relationships between capital structure and financial crisis as well as financial crisis impact on capital structure determinants.

3.2 Sample selection and data resources

Welman, Kruger and Mitchell (2005) state that a population comprises of individuals, groups, organisations, human products and events and the conditions to which that population is exposed. Therefore, JSE listed companies were the population of relevance for the study.

The chosen sample from total population was further classified by industry sector to comprehend the characteristics of comparable subgroups (Albright, 2006). Therefore, the

sample data used in this study have been chosen from two different sectors listed on Johannesburg Stock Exchange which are publicly traded. Johannesburg Stock Exchange is an African exchange located in Sandton, Johannesburg, South Africa.

The retail and real estate industries JSE listed companies from 2004 to 2013 were purposefully selected as the study sample. Any firms with missing data and firms listed for a period of not more than 10 years were excluded. Previous studies conducted in South African context only covered this study across all industries. However, the Retail and Real Estate sectors are major role players that directly affect consumers in South Africa. Thus, this current study selected these two industries to discover the real impact of the financial crisis on the major consumer sectors, which has not been covered in previous studies. All the selected companies are incorporated in South Africa and are listed on the Johannesburg Stock Exchange These companies also have the largest selection of financing choices available and adjustments to financing decisions. According to Myers (2001, p.82), such characteristics make this a suitable target population for studying the capital structure of companies.

Companies were selected from the INET BFA Expert and cover the 10-year period from 2004-2013 inclusive. The period was further segmented into the pre, during and post financial crisis in order to determine the impact of the financial crisis on the South African retail and real estate industries. The years from 2004 to 2006 were categorised as the pre-crises, while the 2007 to 2010 was categorised a during crisis period. The 2011 to 2013 period was categorised as the economic recovery and stable economic period, hence, the post financial crisis period.

Secondary data on the companies listed on the JSE was collected from the INET BFA Expert database. INET BFA is a South African company which provides financial data and this data is standardised by regulation and available for consecutive years.

Financial statements are valuable to investors for determining firm's future earnings and provide management with business insight to make strategic decisions. Ratio analysis has been used as the technique to analyse financial performance of sampled firms. Ratios were used to prevent the challenges of comparing companies of different sizes (Firer *et*

al., 2004). The Balance sheet and the income statement of each company were used to calculate the required ratios. The data extracted from INET BFA was in its raw presentation and using it as is could cause errors in analysis conducted, therefore Microsoft Excel was applied as a tool for the calculation of financial ratios

3.3 Research design

The study selected sample according to Industry Classification Benchmark (ICB) on three listed super sectors on the Johannesburg Stock Exchange. The ICB assigns each company into a sub-sector that characterizes the nature of its business; this grouping is applied globally by stock exchanges and enhances the comparability of stock exchanges across the sphere

3.4 Empirical model

Regression analysis was applied to examine the relationship between the disparity in capital structure determinants and financial crisis. Regression analysis is a statistical method that enables one to test relationship between two or more variables.

This study followed a systematic approach in selecting between the Pooled Ordinary Least Squares (OLS) regression, the fixed effect regression model and the random effects model.

Initially a Hausman $\chi 2(1978)$ test was conducted to assess the whether the random-effects model or the fixed effects model is more appropriate. Where the Hausman's test indicates that the fixed effects model is not suitable then then the Breusch-Pagan Lagrange Multiplier test is used to select between the random effects and Pooled OLS model.

The choice of the most suitable panel regression technique was reviewed with the aid of the Hausman (1978) test and the Breusch and Pagan (1980) LM test as shown in Table 1. The recommended regression technique based on the results in table 1 was the fixed effects regression technique for all the models. In addition, the modified Wald test was used to assess the presence of heteroscedasticity and serial correlation in fixed effect

regression model (Greene, 2000). The Wald Test showed overwhelming evidence to suggest the presence of heteroscedasticity. However, the presence of heteroscedasticity was mitigated by using cluster-robust standard errors which are clustered around the company identifiers. An added advantage of the cluster-robust standard error is that they also mitigate against autocorrelation. Thus, the fixed effects regression technique with cluster-robust error was used in the final model.

Table 1. Hausman and Breusch Pagan test results

Model	Hausman χ2	Breusch Pagan LM	Recommendation
M1: Real Estate	151.1***	46.29***	Fixed effects
M2: Real Estate	162.3***	60.17***	Fixed effects
M3: Retail	32.38***	232.1***	Fixed effects
M4: Retails	33.20***	242.2***	Fixed effects
*** Significant at 1%, ** significant at 5% and * significant at 10%.			

Kennedy (2008) states that the incidence of multicollinearity, which has the ability of biasing the regression estimates, could potentially arise when the correlation coefficients are above 0.7. From the correlation matrices for post crisis and before crisis period, it would appear that there is insufficient evidence of perfect collinearity between the independent variables as all coefficients lie below 0.5.

However, in order to get better results the above model was dropped and Ordinary Least Squares (OLS) model was employed. The OLS regression analysis is a commonly used technique by previous studies in testing the determinants if the capital structure (Jong et al., 2008; Deesomsak et al., 2004). The OLS is better used as an estimator of linear relationship between dependent and independent variables. Leverage is the dependent variable and firm specific factors are independent variables.

Model 1:

Lev = $ß_0$+ßSize+ß Growth+ß ROA+ß NDTS+ßLiquidity+ßTangibility +*e*

Where Lev represent leverage, ROA stands for return on assets and the measurement of all the variable in this model is discussed below.

3.5 Variables measurement

To understand the determinants of capital structure, this study selected the following financial ratios as independent variables: size, profitability, growth, liquidity, non-debt tax shield and tangibility. The selected variables were comparable to those in previous studies (see for example, De Jong et al. 2008; Mouton and Smith, 2016, Danso and Adomako, 2014).

Leverage

The level of financial leverage a firm takes has repercussions for the firm. Theories provide various leverage measures. Those measure are total debt (TD) to total assets (TA) where debt is short-term debt and long-term debt, total debt to capital, long-term debt (or interest-bearing debt) to total assets and long-term debt to equity. These measures come with its flaws as explained by Rajan and Zingales (1995). For example, total liabilities to total assets is criticized for including items which are not for financing activities such as trade payables and these may results in overstating leverage. This study measures leverage as the ratio of total debt to total assets in line with most prior studies (e.g. Pamburai et al, 2015).

Size: To measure size, the natural logarithm of total assets is employed.

Growth: The growth variable is defined as the annual growth rate of total assets.

Non-Debt tax shield: sum of annual depreciation charges and investment tax credits divided by sum of total assets.

Liquidity: According to Deesomsak et al., (2004) it is measured by current assets divided by current liabilities. The ratio measures how quick the firm can turn its current assets into cash to meet its short-term obligations.

Profitability

This study employs the return on assets (ROA) measure as the proxy for profitability. It is measured by net income as a percentage of its total assets.

Tangibility

In this study, asset tangibility is described as the ratio of non-current assets to total assets. The ratio of non-current assets to total assets expresses the collateral value

Preceding the calculation of the variables aforementioned, this study used the Statistical Software for Social Scientists (SPSS) program to combine the main regression procedure. This analysis involved both a cross-sectional method and time-series method to data analysis in order to test the impact of financial crises over the period under review. Cooper and Schindler (1998) claim that cross-sectional studies involve observations taken at a single point in time, for example, the ratios used for company comparison were taken at the end of financial year. Chirinko and Singha (2000) argued that in testing the pecking-order model, time-series variation is crucial to approximating the parameters. A time-series observation comprises of research that is conducted on the same variables over an extended period (Cooper and Schindler, 1998).Additionally, in order to avoid the impact of missing or incomplete data and the measurement of errors that transpire due to random year-to-year variations in the variables, this study implemented the variables averaging method as used by Titman and Wessels (1988), and Nguyen and Ramachandran (2006). These scholars used three and four year averages respectively for all the variables in their studies to increase the accuracy of their findings.

This study articulated on the descriptive statistics of both the dependent and independent variables for the sample over the period under review, by means of measures of central tendency such as mean, maximum values, minimum values and standard deviation with the aim of explaining the overall characteristic of the variables under study. The study also applied Pearson's product-moment correlation methods to examine if there's any correlation between the dependent and independent variables. This study used three (3) year averages for the pre-crisis period, four (4) year averages during crisis period and three (3) year averages for post-crisis period.

4. DATA ANALYSIS

4.1 Introduction

This chapter provides an analysis of data and presents the descriptive statistics and the regression results in an attempt to answer the research question and its objectives.

4.2 Descriptive Statistics

The descriptive statistics are organised into panels, and these panels are presented in Table 2 below. Panel A presents the descriptive statistics for the period prior to the financial crisis (2004-2006). Panel B presents the descriptive statistics for the period during the financial crisis (2007 – 2010) while Panel C presents the descriptive statistics for the period post the financial crisis (2011 – 2013).

The descriptive statistics presented in Table 2 show that the mean for leverage before crisis (refer to Panel A) was 0.48, while the “during” (refer to Panel B) and post financial crisis (refer to Panel C) had a mean of 0.494 and 0.473 respectively. This implies that 48% of the assets of sample firms were on average financed through debt prior to the financial crisis while 49.4% and 47.3% of the assets of the sample firms were on average financed through debt for the period during and post the financial crisis respectively. This shows that the sample firms, on average relied more on the use of debt financing during the financial crisis relative to the period before and post the financial crisis. The increase in the leverage ratio during the crisis period could also be due to firms making huge operating losses which in-turn reduced the equity component in the capital structure.

The statistics in Table 2 also show that sample firms’ assets were financed the lowest with debt post the financial crisis, as the economy had recovered or stabilised from the financial crisis. However, it should be noted that the debt levels for all the periods were close to 50% on average for the sample firms. Furthermore, the descriptive statistics presented in table 2 show that the minimum leverage on average for the sample firms were 0.0102, 0.0084 and 0.0182 for the period prior, during and post the financial crisis respectively while on average the maximum leverage for the sample firms were 0.998,

0.998 and 0.962 respectively for the period before, during and post the financial crisis. In addition, Table 2 shows that the variability or volatility in the leverage ratio on average, as represented by the standard deviation (Sd) was 0.259, 0.261 and 0.261 for the prior, during and post the financial crisis periods respectively. Thus, although the volatility in leverage was on average lowest prior to the financial crisis, it stabilised for the period during and after the financial crisis. In comparison, the differences in volatility in leverage from one period to the next is negligible.

The mean for size for sample firms was 14.43, 14.95 and 15.29 for the period before, during and after the crisis respectively (refer to Panels A, B and C respectively). Thus, it can be envisaged that size was highest post the crisis followed by during and lastly by the before crisis period. Thus, it can be inferred that Size increased gradually for the period during and post crisis possibly due to high inflation during the financial crisis which inflated asset value, and asset value is used to measure size in this study. The minimum and maximum values were 11.71 and 16.56 for the period before the financial crisis, relative to a minimum and maximum of 11.17 and 17.44 for the period during inflation and 11.27 and 17.98 for the post crisis period. The above also confirm the effect of inflation on asset values over the entire period. The volatility of size for sample firms was 1.294, 1.539 and 1.666 for the before, during and after the financial crisis periods as shown by Panels A, B and C respectively. The volatility of size also shows a gradual increase from one period to the next which also confirms the effect of inflation on asset values over the entire period.

The mean for profitability for the sample firms as proxied by ROA was 16.11, 12.97 and 13.51 for the period before, during and post the financial crisis respectively as shown in Panels A, B and C respectively. These results show that profitability was highest before the crisis, declined tremendously during the crisis and steadily recovered post the crisis albeit at lower levels relative to the before crisis period. The decline in profitability during and post financial crisis could be explained by an increase in costs and decline in revenue due to financial crisis. The minimum and maximum values for profitability were -7.662 and 37.25 respectively for the period before the crisis, -32.42 and 39.63 for the period during the crisis and -8.751 and 43.24 for the post crisis period. The variability of profitability as

shown by the standard deviation was 9.651, 10.98 and 10.82 for the before, during and after the financial period respectively. Thus, the period during inflation shows too much variability relative to the before and post crisis period. This is also explained by the gap between the minimum and maximum values which is highest for the period during the crisis period relative to the before and post financial crisis period. The results also show that volatility of profitability was lowest for the before crisis period followed by the post crisis period.

The mean for growth for the sample firms was 18.74, 16.30 and 11.70 for the before, during and after the financial crisis period respectively (refer to Table 2 Panels A, B and C respectively). Growth declined significantly post financial crisis relative to the before and during financial crisis. The tremendous decline in growth post the crisis could be attributed to contracting economy during financial crisis.

The means for the tangibility of assets for the sample firms were 0.449, 0.466 and 0.477 for the period before, during and after the financial crisis period respectively. Thus, the above results show a steady rise in the tangibility of assets from one period to the next (refer to Panels A, B and C shown in Table 2). The stead rise in the value of none current assets as a proportion of total assets could as well be attributed to the effects of inflation. This is also supported by the volatility in the tangibility of assets for the sample firms. Evidence of the variability in the tangibility of assets is also shown by the gap between the minimum and maximum values of tangibility for the before, during and after financial crisis period respectively. This could as well be attributed to the volatility in the prices of tangible assets due to the effects of inflation over the period considered for this study.

The means for liquidity for the sample firms were 2.431, 1.963 and 1.928 for the before, during and post financial crisis period respectively. Given that liquidity is a measure of the ability of the firm to convert its short-term assets in cash to meet its short-term obligations as they fall due, we envisage that although liquidity was highest before the financial crisis, it deteriorated during and after the financial crisis. In addition, the results show that the volatility in liquidity was the highest for all the variables considered for this study. The volatility of liquidity was highest (i.e. 5.206) before the crisis, followed by the period during (2.140) and lastly the post financial crisis (2.068). The gap between the minimum and

Maximum values for liquidity is large for all the periods under consideration (refer to Table 2, Panels A, B and C). These results show that the liquidity of sample firms was affected the most by the effects of inflation.

The means for tax shield for the sample firms were 0.381, 0.180 and 0.116 for the before, during and post financial crisis period respectively. The results show that the mean was highest for the period before the financial crisis, followed by the period during and lastly the period post the crisis. Overall, the results show that the tax shield worsened post the financial crisis (refer to Table 2, Panels A, B and C).

Table 2: Descriptive statistics

PANEL A					
PRE CRISIS PERIOD (2004-2006)					
Variables	**N**	**Mean**	**Sd**	**Min**	**Max**
Leverage	75	0.480	0.259	0.0102	0.998
Size	75	14.43	1.294	11.71	16.56
ROA	75	16.11	9.651	-7.662	37.25
Growth	75	18.84	17.70	-15.73	62.62
Tangibility	75	0.449	0.322	0.0227	0.996
Liquidity	75	2.431	5.206	0.0757	42.59
Tax Shield	75	0.381	1.658	-0.439	14.13
PANEL B					
During CRISIS PERIOD (2007-2010)					
Leverage	100	0.494	0.261	0.0084	0.998
Size	100	14.95	1.539	11.17	17.44
ROA	100	12.97	10.98	-32.42	39.63
Growth	100	16.30	29.33	-96.31	178.6
Tangibility	100	0.466	0.304	0.0293	0.966
Liquidity	100	1.963	2.140	0.0990	14.50
Tax Shield	100	0.180	0.517	-0.687	4.873
PANEL C					
POST CRISIS PERIOD (2011-2013)					
Leverage	75	0.473	0.261	0.0182	0.962
Size	75	15.29	1.666	11.27	17.98
ROA	75	13.51	10.82	-8.751	43.24
Growth	75	11.70	15.66	-69.50	76.18
Tangibility	75	0.477	0.302	0.0236	0.933
Liquidity	75	1.928	2.068	0.0254	7.369
Tax Shield	75	0.116	0.263	-0.909	0.858

4.3 Correlation matrix

In addition to the descriptive statics, a correlation matrix was produced to determine the correlation coefficients between the explanatory or independent variables in a model. Thus, the assessment of the correlation coefficients will enable this study to assess the reliability the liner regression estimates. A high correlation between the explanatory variables indicates the problem of multicollinearity. The presents of multicollinearity render the linear regression estimates unreliable. Therefore, Table 3 below presents the correlation matrix that was used to evaluate the reliability of the regression estimates for the period before, during and after the financial crisis. Similar to the presentation on descriptive statistics, the correlation matrixes for the segmented periods are presented in Panels, with Panel A representing the before financial crisis period while Panels B and C represent the periods during and post the financial crisis respectively.

A glance at all the panels in Table 3, show that the correlation coefficients of all the pairs of the explanatory variables are very low. According to Gujarati (1995), multicollinearity is a problem if the correlation coefficients between the explanatory variables are greater than 0.8. Therefore, based on results presented in Table 3, it is envisaged that the correlation coefficients for all the pairs are below the 0.8, which suggests that the problem of multicollinearity is not present. This suggesting that the linear regressions estimates will not be biased.

Table 3: Correlation Matrix

PANEL A							
BEFORE CRISIS PERIOD (2004-2006)							
	Leverage	Size	ROA	Growth	Tangibility	Liquidity	Tax shield
Leverage	1						
Size	0.5848	1					
ROA	-0.1624	0.1213	1				
Growth	0.3203	0.3684	0.3552	1			
Tangibility	-0.0614	0.1477	0.2832	0.405	1		
Liquidity	-0.4085	-0.4332	-0.0102	-0.1588	-0.0699	1	
Tax Shield	-0.0785	-0.0617	-0.2453	-0.1776	-0.0892	0.0039	1
PANEL B							
DURING CRISIS PERIOD (2007-2010)							
	Leverage	Size	ROA	Growth	Tangibility	Liquidity	Tax shield
Leverage	1						
Size	0.5101	1					
ROA	-0.2401	0.1511	1				
Growth	0.1527	0.3061	0.0797	1			
Tangibility	-0.0168	0.2226	-0.2991	0.2138	1		
Liquidity	-0.7127	-0.5717	0.2067	-0.1424	-0.3936	1	
Tax Shield	0.2212	0.1374	0.2515	0.0668	-0.2717	0.0066	1
PANEL C							
POST CRISIS PERIOD (2011-2013)							
	Leverage	Size	ROA	Growth	Tangibility	Liquidity	Tax shield
Leverage	1						
Size	0.3945	1					
ROA	-0.2471	0.07	1				
Growth	-0.0935	0.2227	0.2051	1			
Tangibility	-0.1735	0.1933	-0.2378	0.1203	1		
Liquidity	-0.591	-0.5268	0.0937	-0.2007	-0.1736	1	
Tax Shield	0.0963	-0.1732	-0.022	-0.0323	-0.2956	0.0054	1

4.4 Empirical regression results

This section presents a discussion of the empirical analysis of the findings of this study. The analysis is organised into three sections. The first section discusses the results based on the pre financials crisis period. Section two discusses the results based on the during the financial crisis period while section three presents a discussion of results based on the post financial analysis period.

4.4.1 An analysis of results based on the before financial crisis period (2004-2006).

The results based on the pre-crisis period are shown in Table 4 below. A glance at the results presented in Table 4 show that the overall model is significant at 1%, with an F statistic of 8.221, and an adjusted R squared of 49.9%. Furthermore, the results show that the relationship between size and leverage is positive and significant at 1% significance level. This finding is consistent with the proposition of the trade of theory which hypothesizes that the relationship between size and leverage is expected to be positive. Empirically, the findings of this study are also consistent with the findings in prior studies (see for example, Rajan and Zingales, 1995; Alexander, 2005; Psillaki and Daskalikis, 2008; Strebulaevllya, 2006; Harris and Raviv, 1990; Jensen, 1986). However, the findings are inconsistent with the findings of Ferri (1979) who found no relationship between size and leverage.

The results further show that profitability as measured by ROA has a significant negative relationship with leverage at 1%. The finding of a negative relationship between profitability and leverage could be attributed to the agency problems among the shareholders and debtholders which is induced by use of excessive debt. The findings of this study are consistent with the findings of Zeitun and Tian (2007), Titman and Wessels (1988), Rajan and Zingales (1995), Weill (2008) and Fama and French (1998) who also found a negative relationship between profitability and leverage. However, the findings of this study are inconsistent with the findings in Baker (1973), Abor (2005), and Fosu (2013) who found a positive relationship between profitability and leverage. The finding of the negative relationship between profitability and leverage is also inconsistent with the hypothesized view of the trade-off theory, which expects a positive relationship between profitability and leverage.

In addition, this current study's findings show a positive and significant relationship between growth and leverage. The findings of this study are consistent with Wald (1999), Chen (2004) and Zou and Xiao (2006) but inconsistent with the findings in Rajan and Zingales (1995), Myers (19977), Fama and French (2002), Jonson, (2003), La Rocca et al (2009) who found negative relationship between growth and leverage. The results of this study are also inconsistent with the perking order theory which theorizes a negative

relationship between growth and leverage. Furthermore, the results of this study contradict Myers (1977)'s proposition that firms with high growth rates have a greater incentive to use lower debt in their financing decisions in order to curb the disinvestment problem.

With regards to asset tangibility, the findings of this study show that there is a negative and significant relationship between tangibility and leverage at 10% for the pre-crisis period. Thus, the findings of this study are consistent with those in studies by Booth et al (2001) and Butt et al (2013) and the perking order theory which also theorizes a negative relationship between asset tangibility and leverage. In support of a negative relationship between tangibility and leverage, Butt et al (2013) argued that total debt and long-term debt are affected differently by asset tangibility, thus long-term debt increases as the percentage of tangible assets increases while total debt decreases as the proportion of tangible assets increases. However, the findings of this current study contradict the findings in Rajan and Zingales, (1995), Friend and Lang (1998), Harris and Raviv (1991), Fama and French (2000), Frank and Goyal (2007) that found a positive relationship between asset tangibility and leverage. In addition, the findings of this study are also inconsistent with the tradeoff theory that expects a positive correlation between asset tangibility and leverage.This study also found a negative and significant relationship between liquidity and leverage at 10% for the pre-crisis period. These findings are consistent with the perking order theory and the findings in Butt et al (2013) albeit contradicting the findings in Sibilkov (2007) who found a positive relationship between liquidity and leverage. Lastly, this study found no relationship between tax shield and leverage. This finding contradicts Deesomak, Paudyal and Pescetto (2004) who found that non debt tax shield is positively related to leverage and Frank and Goyal (2003) who found a negative relationship between non debt tax shield and leverage (refer to table 3 below).

Table 4 Before Crisis Period (2004-2006)

VARIABLES	Pre-Crisis
Size	0.0925***
	(4.485)
ROA	-0.00763***
	(-2.882)
Growth	0.00424***
	(2.717)
Tangibility	-0.149*
	(-1.910)
Liquidity	-0.00882*
	(-1.815)
Tax_Shield	-0.0127
	(-0.882)
Constant	-0.708**
	(-2.378)
Observations	75
R-squared	0.499
Adjusted R-squared	0.438
F test	8.221***

*** Significant at 1%, ** significant at 5%, * significant at 10%.

4.4.2 An analysis of results based on the during the financial crisis period (2007-2010).

The results based on the during financial crisis as shown in Table 5 below, show that the overall model is significant at 1%, with an F statistic of 12.42, and an adjusted R squared of 50.9%. During financial crisis the possibility that firms will go bankrupt is high, and banks tighten their credit policies. Thus, owing to stringent credit policies during the crisis times, firm size becomes one of the key considerations in credit lending as large firms are deemed to provide comfort to the lenders. Sizeable firms tend to be less risky relative to small firms and as a result they have better access to credit. The results of this study are consistent with this reasoning as they show that the relationship between size and leverage is positive and significant at 1% significance level during a crisis period. However, the findings of the period during the crisis are also consistent with those for the pre-crisis period which also show a positive and significant relationship at 1% significance level.

The findings of this study are also consistent for the period pre and during crisis with respect to the relationship between profitability and leverage. The findings for both

periods show that the association between profitability and leverage is negative and significant and 1% significance level. Thus, similar conclusions could be drawn from this analysis.

Furthermore, the findings of this study show a negative and significant relationship between growth and leverage at 5%. However, the findings for the period during a financial crisis are inconsistent with those for the pre-crisis period which show a positive and significant relationship between growth and leverage at 1%. Thus, the findings of the period during crisis contradict the findings in Wald (1999), Chen (2004) and Zou and Xiao (2006) who found a positive relationship between growth and leverage. However, the findings of the period during crisis are consistent with the findings in Rajan and Zingales (1995), Myers (19977), Fama and French (2002), Jonson, (2003), La Rocca et al (2009) who found negative relationship between growth and leverage. In addition, the results based on the during the crisis period are also consistent with the perking order theory which theorizes a negative relationship between growth and leverage. Similarly, the findings for during the crisis period are also consistent with Myers (1977)'s proposition that firms with high growth rates have a greater incentive to use lower debt in their financing decisions in order to curb the disinvestment problem.

This study further shows that the relationship between asset tangibility and leverage is negative and significant relationship at 1% for the during crisis period. Although these findings are consistent with those shown in the pre-crisis period in terms of the direction of the relationship (negative relationship), there is an improvement in terms of the level of significance. Thus, while the results for the pre-crisis period are significant at 10%, the findings for during crisis are significant at 1%, which is much a stronger level of significance than the pre-crisis period.

Similar to the findings in the pre-crisis period which show a negative and significant relationship between liquidity and leverage, the findings of the during crisis period show a more significant correlation between liquidity and leverage, that is, at 1% significance level relative to the 10% observed for the pre-crisis period. Consistent with the findings shown in the pre-crisis period, the findings of the during crisis period show that there is no relationship between tax shield and leverage.

Table 5

VARIABLES	Crisis
Size	0.0412***
	(2.802)
ROA	-0.00624***
	(-3.403)
Growth	-0.00151**
	(-2.126)
Tangibility	-0.297***
	(-4.415)
Liquidity	-0.0649***
	(-6.208)
Tax_Shield	0.0118
	(0.306)
Constant	0.254
	(1.086)
Observations	100
R-squared	0.554
Adjusted R-squared	0.509
F test	12.42***

*** Significant at 1%, ** significant at 5%, * significant at 10%.

4.4.3 An analysis of results based on the post the financial crisis period (2011-2013).

Table 6 presented below provides an analysis of results based on the post crisis period. The overall model as shown in Table 6 is significant at 1%, with an F statistic of 20.68, and an adjusted R squared of 68%. Consistent with the results for the period pre and during crisis, the results in Table 6 show that size is persistently positive and significantly related to leverage albeit at 5%, a level which is lower than the pre and during the crisis periods that show a significance level of 1%.

Similar to the findings of the pre and during the crisis periods, the post crisis period shows that there is a negative and signification association between profitability and leverage at 1% significance level. Thus, overall, the results show that there is consistency in the relationship between profitability and leverage over segmented periods.

However, the findings on the relationship between growth and leverage have been deteriorating from one period to the next. A comparison of the contents of Table 4 (pre-crisis), 5 (during crisis) and 6 (post crisis) show that pre-crisis period show a positive relationship between growth and leverage at 1%, while the during crisis period reveal a negative relationship at 5%, both of which are contradicted by the results shown in Table 6 which reveal that no relationship exists between growth and leverage post the crisis.

The results also show that the relationship between asset tangibility and leverage has been consistently negative and significant at 1% for the period during and post financial crisis, albeit at 10% for the period pre-crisis. Thus, the results reveal that the relationship between asset tangibility and leverage became much stronger during and after the financial crisis relative to the pre-crisis period.

Similarly, the results of this study further reveal that the relationship between liquidity and leverage has been persistently negative and significant at 1% for the period during and post financial crisis albeit at 10% for the pre-crisis period, which also shows that the relationship between liquidity and leverage became much stronger during and post financial crisis.

Contrary to the pre and during crisis periods, the results in Table 6 show there is a positive and significant relationship between Tax shield and leverage post the financial crisis. Thus, the results shown in the post crisis period are consistent with the findings of Deesomak, Paudyal and Pescetto (2004) who found that non debt tax shield is positively related to leverage but contrary to the results shown in Frank and Goyal (2003) who found a negative relationship between non debt tax shield and leverage (refer to table 6 below).

Table 6

VARIABLES	Post-Crisis
Size	0.0332**
	(2.358)
ROA	-0.00717***
	(-3.970)
Growth	0.00138
	(1.115)
Tangibility	-0.341***
	(-5.029)
Liquidity	-0.0851***
	(-7.535)
Tax_Shield	0.155**
	(2.169)
Constant	0.364
	(1.666)
Observations	75
R-squared	0.715
Adjusted R-squared	0.680
F test	20.68***

*** Significant at 1%, ** significant at 5%, * significant at 10%.

4.5 Summary

This chapter discussed the results on the determinants of capital structure, before, during and after the financial crisis, with focus on size, profitability, growth, asset tangibility, liquidity and non-debt tax shield. The results analyzed were based on three models, one for each period as specified above. All the models analyzed fitted the data significantly at 1%, with F statistics of 8.221, 12.42 and 20.68 for the pre, during and post crisis respectively. Furthermore, the adjusted R squared for each model were 49.9%, 50.9% and 68% for the pre, during and post financial crisis periods. This confirms that that the explanatory power of the models increased during and post the financial crisis. In addition, the results in Tables 4, 5 and 6, show that four (i.e. size, ROA, Tangibility and Liquidity) of the six variables examined were significant at 1% during the financial crisis period relative to three (i.e. size, ROA and Growth) for the pre-crisis period and three for the post crisis period (ROA, Tangibility and Liquidity). This shows that more variables became

more strongly and significantly related to leverage during that financial crisis relative to the pre and post financial crisis. However, the post crisis period also had more variables that were significantly stronger than the pre-crisis period. The results also show that only size had a consistently positive and significant relationship with leverage for all the periods, while ROA, Tangibility and Liquidity had a consistently negative and significant relationship with leverage for all the periods

Overall, if the impact of the financial crisis is to be determined based on the number and strength of the relationship between variables and leverage, then, it could be concluded that the financial crisis has had more impact relative to the pre and post financial crisis as can be seen from the results in in Tables 4, 5 and 6

5. CONCLUSION

5.1 Introduction

This study examined the impact of the financial crisis on the company's capital structure with the main focus on size, growth, profitability, liquidity, tangibility and non-debt tax shield as potential determinants of capital structure decisions made by companies. The study examined the JSE listed companies for the period 2004 to 2013, focusing mainly on the real estate and retail sector. The results for the impact on determinants of capital structure, as determined by this study, were found to be consistent with the trade off and perking order theories, as well as empirical studies on the determinants of capital structure and financial crisis. The results of this current study are herein summarized in the subsequent sub section.

5.2 Summary on the findings of this study

The findings of this current study show that size, profitability, tangibility, and liquidity were all statistically and consistently significant determinants of capital structure of the firms listed under the real estate and retail industry in South Africa for the period before, during and after the 2007/2008 financial crisis. Empirical results found profitability, as proxied by ROA, to be negatively correlated to debt in all the three periods considered for this study. Based on the above, we envisage that the finding of a negative correlation between profitability and leverage is consistent with both the pecking order and trade- off theories which hypotheses that profitable companies are likely to use internal funds than external funds, more especially during crisis periods. In addition, Size was found to have a positive correlation with leverage for all the periods under investigation, which is consistent with the notion or view that companies with sizeable assets are able to offer more comfort to lenders, which in turn provides them with better access to funding.

However, contrary to the findings in prior studies, this current study consistently found a negative relationship between tangibility and leverage, and this finding was more significant for the periods during and after the financial crisis (that is at 1% for the period during and after financial crisis relative to 10% before the financial crisis). This finding,

albeit being inconsistent with prior studies is consistent with Titman and Wessle (1988) argument that this correlation is possible as a result of managers exceeding the optimal debt level than is allowed. Thus, in the case of this study, it could be possible, given that Real estate companies are highly likely or are more than likely to exceed optimal debt levels. This study also found a negative relationship between liquidity and leverage, which also confirms the propositions in the trade off and perking order theories which posits that firms with high liquidity may opt to utilise internal funds. This finding could also be traced to practical evidence shown in the case of companies in the retail industry's funding options, where internal funds are the most preferred.

Furthermore, the results of this study show that growth had a statistically and significantly negative association with leverage for the period before and during the 2007/2008 financial crisis albeit a none statistical significance post the financial crisis. Lastly, this study also found that Non-debt tax shield had an insignificant association with leverage for the period before and during financial crisis, albeit a statistically and significantly positive relationship with leverage at 5% for the period post the financial crisis.

Overall, this study provides an insight into the debate on the potential determinants of capital structure decisions in the real estate and retail industry using a developing country, South Africa, in this case, as a location of the study. The results of this study are also consistent with the findings and or arguments proffered in prior studies. Furthermore, the study also makes an important contribution to the literature on the determinants of capital structure through its examination of the consistency in the significance of these determinants to capital structure decisions before, during and after financial crisis. This in actual fact important as this matches the practical realities of the turbulent nature of the business cycles that companies go through. Thus, in segmenting the entire period into the before, during and after the financial crisis, this current study acknowledges that, due to the nature and changes in the business cycles that companies go through, companies would alter their capital structures accordingly, and that this alteration will be influenced to some extent, though the list is endless, by the factors considered for this study.

5.3 Recommendations for future research

Nonetheless, this study also acknowledges that due to changes in the financial market system, the capital structure remains the anchor of firms' financing decision, hence, suggesting that further studies should continue to review the determinants of capital structure decisions made by companies, more especially by focusing on other industries that this study did not consider. Furthermore, further studies could conduct a similar analysis by industry or they might as well control for industry differences such that a conclusion could be made on whether the industry of affiliation has a role in influencing capital structure decisions. In addition, various other determinants could be considered for future studies, with the view to gather more information on the factors that drive capital structure decisions in South Africa and elsewhere. Moreso, a cross country study that conducts a comparative examination of the determinants of capital structure decisions between a developing and developed country with similar characteristics would be interesting.

Similarly, a cross country study that investigates the determinants of capital structure between developing countries within the same region or in different regions with the view of trying to understand whether geographical or regional difference play a role in capital structure decisions would also provide some insights into this ongoing debate, especially due to the fact that the study will be focused on the same time frame. This will shade more light to the mixed results that we have in prior studies as they have been conducted at different time periods and a host of other various differences which could be controlled if this is done in one study, and across countries. This could enhance the comparability of findings. Single country studies are also important if they also consider controlling for various other factors that influence capital structure decisions, for example, in addition to controlling for difference in business cycles, further studies could as well consider taking into account the governance characteristics into consideration, as the board and CEO characteristics could also play a role in the capital structure decisions made by companies.

References

Abor, J. & Biekpe, N., 2006. An empirical test of the agency problems and capital structure of South African quoted SMEs. *SA Journal of Accounting Research,* 20(1), pp. 51-65.

Abosede, A., 2012. Pecking order theory of capital structure: Another way to look at it. *Journal of Business Management and Applied Economics,* Issue 5.

Adrian, T. & Shin, S., 2008. *Financial Intermediaries, Financial Stability, and Monetary Policy,* s.l.: Social Science Research Network website: http://ssrn.com/abstract=1266714.

Akbar, S., Rehman, S. & Ormrod, P., 2013. The impact of recent financial shock on the financing and investment policies of UK private firms.. *International Review of Financial Analysis,* Volume 26, pp. 59-70.

Akello, R., 2013. *How globalization has affected South Africa.* [Online]
Available at: https://getanessay.wordpress.com/how-globalization-has-affected-south-africa
[Accessed 20 07 2018].

Akin, C. & Kose, M., 2008. Changing nature of North-South linkages: Stylized facts and explanations.. *Journal of Asian Economics,* Volume 19, pp. 1-28.

Albright, A. & Hayes, B., n.d.

Alexander, C. & Fratzscher, M., 2012. Liquidity, Risk and The Global Transmission of the 2007-08 Financial Crisis and the 2010-11 Sovereign Debt Crisis. *CEPR Discussion Papers 8787.*

Alexander, K. & A., S., London Business School. Firm Size and Capital Structure. *Working Paper*.

Anarfo, E., 2015. Determinants of capital structure of banks: Evidence from sub-Sahara Africa. *Asian Economic and Financial Review,* 5(4), p. 624 – 640.

Atkin, M. & Glen, J., 1992. Comparing corporate capital structures around the globe.. *The International Executive,* 34(5), pp. 369-387.

Bailey, M. & Elliott, D., 2009. *The U.S Financial and Economic Crisis: Where does It Stand and Where Do We Go From Here?,* s.l.: Brookings.

Baily, M. & Elliot, D., 2009. *The U.S. Financial and Economic Crisis: Where Does It Stand and Where Do We Go From Here?,* s.l.: Brookings.

Baker, S., 1973. Risk, leverage and profitability: an industry analysis. *Review of Economics and Statistics,* 55(4), p. 503.

Balsari, C. & Kirkulak, B., 2008. *5th Conference of the Portuguese Finance Network Proceedings..* Combria, Portugal.

Balsari, K. & Kirkulak, B., 2010. *Effect of financial crisis on the capital structure choice: Evidence from Istanbul Stock Exchange (ISE).,* Izmir: Dokuz Eylul University: Working paper..

Barclay, M., Morellec, E. & Smith, C., 2001. *On the debt capacity of growth.* New York: Unpublished working paper.

Barclay, M. & Smith, C., 2005. The Capital Structure Puzzle: The Evidence Revisited. *Journal of Applied Corporate Finance ,* 17(1), pp. 8-17.

Baxter, R., 2017. *The global economic crisi and its impact on South Africa and the country's mining industry.* s.l.:South African Reserve Bank.

Beattie, V., Goodacre, A. & Thomson, S., 2006. Corporate financing decisions: UK Survey evidence. *Journal of Business Finance and Accounting,* 33(9-10), pp. 1402-1434.

Berg, G. & Kirschenmann, K., 2010. *The impact of the US financial crisis on credit availability for small firms in Central Asia,* s.l.: s.n.

Berg, G. & Kirschenmann, K., 2010. *The impact of the US financial crisis on credit availability for small firms in Central Asia,* Washington: The World Bank.

Booth, L., Aivazian, V., Demirguc-Kunt, A. & Maksimovic, V., 2001. Capital Structures in Developing Countries. *The Journal of Finance,* 56(1), pp. 87-130.

Bradley, M., J, G. A. & E, H. K., 1984. On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance,* 39(3), pp. 857-878.

Breusch, T. & Pagan, A., 1980. The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *Review of Economic Studies,* Volume 47, pp. 239-253.

Brigham, E. & Ehrhardt, 2003. *Financial Management: Theory and Practice.* 10th ed. s.l.:Harcourt College .

Butt, S., Khan, A. & Nafees, B., 2013. Static trade-off theory or pecking order theory which one suits best to the financial sector. Evidence from Pakistan. *European Journal of Business and Management,* 5(23), pp. 131-140.

Chen, J., 2004. Determinants of capital structure of Chinese- listed companies. *Journal of Business Research,* Volume 57, pp. 1341-1351.

Chirinko, B. & Singha, A., 2000. Testing static trade off against pecking order models of capital structure: a critical comment. *Journal of Financial Economics,* 58(3), pp. 417-425.

Cooper, R. & Schindler, P., 1998. *Business Research Methods.* 6th ed. Irwin: McGraw-Hill.

Corbett, J. & Jenkinson, T., 1996. The financing of industry, 1970-89: an international comparison. *Journal of Japanese and International Economies,* 10(1), pp. 71-96.

Cotei, C. & Farhat, J., 2009. The trade-off theory and the pecking order theory: Are they mutually exclusive?. *North American Journal of Finance and Banking Research,* 3(3).

Danso, A. & Adomako, S., 2014. Financing behavior of firms and financial crisis. *Managerial Finance,* 21(3), p. 47.

De Haas, R. & Peeters, H., 2004. The dynamic adjustment towards target capital structures of firms in transition economies. *Economics of Transition,* 14(87).

De Jong, A., Kabir, R. & Nguyen, T., 2008. Capital structure around the world: the roles of firm and country specific determinants.. *Journal of Banking and Finance,* 32(9), pp. 1954-1969.

de Wet, J., 2006. Determining the optimal capital structure: a practical contemporary approach. *Meditari Accountancy Research,* 14(2), pp. 1-16.

DeAngelo, H. & Masulis, R., 1980. Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics,,* 8(1), pp. 3-29.

Deesomsak, P., Paudyal, K. & Pescetto, G., 2004. The determinant of capital structure: evidence from the Asia Pacific region. *Journal of Multination Financial Management,* 14(4), pp. 387-405.

Demirguc-Kunt, A., Martinez Peria, M. S. & Tressel, T., 2015. *The impact of the global financial crisis on firms' capital structure,* The World Region: Policy Research working paper.

Demirgus-Kunt, A., Martinez-Peria, M. & Tressel, T., 2015. The Impact of the Global financial crisis on Firm's capital structure. *Wolrd Bank:Policy Research Working Paper.*

Denis, D. & Mihov, V., 2002. The choice among bank debt, non-bank private debt and public debt: evidence from new corporate borrowings. *Journal of Financial Economics,* Volume 70, pp. 3-28.

Ebaid, I., 2009. The impact of capital structure choice of firm performance: empirical evidence from Egypt. *Journal of Risk Finance,* 10(5), pp. 477-487.

Fama, E. & French, K., 1988. Taxes, financinga decisions and firm value. *The Journal of Finance,* 53(2), pp. 819-844.

Fama, E. & French, K., 1998. axes,financing decisions, and firm value. *Journal of Finance,* 53(3), pp. 819-843.

Fama, E. & French, K., 2000. *Testing Trade-off and Pecking order predictions about Dividends and Debt,* s.l.: University of Chicago (CRSP Working Paper 506).

Fama, E. & French, K., 2002. Testing trade-off and pecking order predictions about dividend and debt. *The Review of Financial Studies,* 15(1), pp. 1-33.

Fama, E. & French, K., 2005. Financing decision; who issue stock?. *Journal of Financial Economics,* 76(3), pp. 549-582.

Fama, E. & Miller, M., 1972. *The Theory of Finance,* New York: Holt, Rinehard and Winston.

Ferri, M. & Jones, W., 1979. Determinants of Financial Structure: A New Methodological Approach. *Journal of Finance,* 34(3), pp. 631-644.

Firer, C., Ross, S., Westerfield, R. & Jordan, B., 2004. *Fundamentals of Corporate Finance.* 3rd ed. Berhshire: McGraw Hill.

Fosberg, R., 2012. Capital Structure and financial crisis. *Journal of Finance and Accounting,* Volume 11, pp. 46-52.

Fosu, S., 2013. Capital structure,product market competition and firm performance: evidence from South Africa. *Quarterly Reivew of Economics and Finance,* 53(2), pp. 140-151.

Frank, M. & Goyal, K., 2003. Testing pecking order of capital structure. *Journal of Financial Economics,* Volume 67, pp. 217-248.

Frank, Z. & Goyal, V., 2009. Capital Structure Decisions: Which Factors Are Reliably. *Financial Management,* 38(1), pp. 1-37.

Friedlinghaus, A. & Mostert, B. F. C., 2005. Capital structure and the firm's life stage. *South African Journal of Business Management,* 36(4), pp. 9-18.

Graham, J. & Harvey, C., 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics,* Volume 60, pp. 187-243.

Greene, W., 2000. *Econometric Analysis.* New York: Prentice-Hall.

Grossman, S. & Hart, O., 1982. *Corporate financial structure and mangerial incenvtives,* Chicago: University of Chicago Press.

Gwatidzo, T., Miracle, N. & Mthokozisi, M., 2016. Capital Structure Determinants in South Africca: A Regression Approach. *Journal of Economic and Financial Sciences,* 9(1), pp. 275-290.

Harris, M. a. R., 1990. Capital structure and the informational role of debt. *Journal of Finance,* Volume 45, pp. 321-349.

Hausman, J., 1978. Specification Tests in Econometrics. *Econometric,* Volume 46, pp. 1251-1272.

Homaifar, G., Zietz, J. & Bonkato, O., 1994. An empirical model of capital structure: Some new evidence. *Journal of Business Finance and Accounting,* 21(1), pp. 1-14.

Ibrahimo, M. & Barros, C., 2009. Relevance or irrelevance of capital structure?. *Economic Modelling,* 26(2), pp. 473-479.

JaeBib, A., Amiti, M. & Weinstein, D., 2011. Trade Finance and the Great Trade Collapse. *American Economic Review,* 101(3), pp. 298-302.

Jensen, M., 1986. Agency cost and free cash flow, corporate finance and takeovers. *American Economic Review,* Volume 76, pp. 323-339.

Jensen, M. & Meckling, W., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* 3(4), pp. 305-360.

Johnson, S., 2003. Debt Maturity and the Effects of Growth Opportunities and Liquidity Risk on Leverage. *Review of Financial Studies,* Volume 16, pp. 209-236.

Kahle, K. & Stulz, R., 2013. Access to capital, investment, and the financial crisis. *Journal of Financial Economics,* 110(2), pp. 280-299.

Kennedy, P., 2008. *A Guide to Econometrics.* 6th ed. Oxfortd, UK: Blackwell Publishing.

Khademi, H., 2013. *Capital Structure and Global Financial Crisis: The Case of Non-Financial Firms in Nertherlands.* Gazimagusa, North Cyprus: Eastern Mediterranean University.

Kraus, A. & Litzenberger, R., 1973. A state preference model of optimal financial leverage. *The Journal of Finance,* 28(4), pp. 911-922.

La Rocca, M., La Rocca, T. & Cariola, A., 2009. Capital Structure Decisions During a Firm's Life Cycle. *Small Business Economics,* 37(1), pp. 107-130.

Lasher, W., 2003. *Practical Financial Management.* 3rd ed. s.l.:Mason Thomson.

Lim, S. & Lew, S., 2013. Have Korean Firms Changed Their Financing Patterns and Capital Structure after the Asan Financial Crisis.

Malinić.D, Denčić-Mihajlov, K. & Ljubenović, E., 2013. The Determinants of Capital Structure in Emerging Capital Markets: Evidence from Serbia. *European Research Studies,* XVI(2), pp. 98-119.

Margaritis, D. & Psillaki, M., 2007. Capital Structure and Firm Effificency. *Journal of Business Finance and Accounting,* 34(9-10), pp. 1447-1469.

Mayer, C., 1988. New issues in corporate finance. *European Economic Review,* 32(5), pp. 1167-1189.

Michaelas, N., Chittenden, F. & Poutziouris, P., 1999. 'Financial Policy and Capital Structure Choice in UK SMEs: Empirical Evidence from Company Panel Data. *Small Business Economics,* Volume 12, pp. 113-130.

Modigliani, F. & Miller, M., 1958. The cost of capital, corporation finance and the theory of investment. *The American Economic Review,* 48(3), pp. 261-297.

Modigliani, F. & Miller, M., 1963. Corporate income taxes and the cost of capital: A correction. *The American Economic Review,* 53(3), pp. 433-444.

Morellec, E., 2001. Asset liquidity, capital structure, and secured debt. *Journal of Financial Economics,* 61(2), pp. 173-206.

Mouton, M. & Smith, N., 2016. Company determinants of capital structure on the JSE Ltd and the influence of 2008 financial crisis. *Journal of Economic and FInancial Sciences,* 9(3), pp. 789-806.

Mugosa, A., 2015. The determinants of capital structure choice: Evidence from Western Europe. *Business Economic Horizons,* 11(2), pp. 76-95.

Mukherjee, S. & Mahakud, J., 2010. Dynamic adjustment towards target capital structure: evidence from Indian companies. *Journal of Advances in Management Research,* 7(2), pp. 250-266.

Myers, S., 1977. Determinants of capital borrowing. *Journal of Financial Economics,* Volume 5, pp. 147-175.

Myers, S., 1984. The capital structure puzzle. *Journal of Finance,* 39(3), pp. 575-592.

Myers, S., 2001. Capital structure. *Journal of Economic Perspectives,* 15(2), pp. 81-102.

Negash, M., 2002. Corporate tax and capital structure: some evidence and implications.. *Investment Analysts Journal,* Volume 56, pp. 17-27.

Nguyen, D., Diaz-Rainey, I. & Gregoriou, A., 2006. Capital Structure in Small and Medium-sized Enterprises: The Case of Vietnam. *Journal of Southeast Asian Economies,* 23(2), pp. 192-211.

Nicola, C. & Goldeberg, L., 2011. Global Banks and International Shock transmission: evidence from the crisis. *IMF Economic Review,* 59(1), pp. 41-76.

Okzan, A., 2001. Determinants of capital structure and adjustments to long run target: evidence from UK company panel data. *Journal of Business Finance and Accounting,* 28(1-2), pp. 175-198.

Olayinka, A. & Awolowo, O., Spring 2011. Determinants of Capital Structure: Evidence from Nigerian panel data. *African Economic and Business Review,* 9(1), pp. 1-16.

Oztekin, O. & Flannery, M., 2012. Institutional determinants of capital structure adjustment speeds.. *Journal of Financial Economics,* 103(1), pp. 88-112.

Pattani, A., Vera, G. & Wackett, J., 2011. Going Public: UK Companies' Use of Capital Markets?. *Bank of England Quarterly Bulletin, Q4.*

Rajan, R. & Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. *The Journal of Finance,* 50(5), pp. 1421-1460.

Richard, I. & Joel, P., 1992. *Quantitative Approaches to Management.* 8 ed. s.l.:McGraw Hill College Division.

Ross, S., Firer, C., Jordan, B. & Westerfield, R., 2001. *Fundamentals of Corporate Finance.* 2nd ed. s.l.:McGraw-Hill Book.

Saayman, A., 2010. *Why money matters-the financial crisis and the South African economy,* Potchefstroom: School of Economics, North-West University.

Sharma, A., 2006. Financial leverage and firm's value: A study of capital structure of selected manufacturing sector firms in India. *The Business Review,* 6(2), pp. 70-76.

Sibilkov, V., 2007. *Asset liquidity and capital structure.* [Online]
Available at: https://pantherfile.uwm.edu/sibilkov/www/liquidity.pdf
[Accessed 15 June 2019].

Titman, S. & Wessel, R., 1988. The determinants of capital structure choice. *The Journal of Finance,* 43(1), pp. 1-19.

Vo, X. V., 2016. Determinants of capital structure in emerging markets: Evidence from Vietnam. *Research in International Business and Finance.*

Ward, M. & Price, A., 2006. *Turning vision into value.* Pretoria: Van Schaik.

Weill, L., 2008. Leverage and corporate performance: does institutional environment matter?. *Small Business Economics,* 30(3), pp. 251-265.

Welman, C., Kruger, F. & Mitchell, B., 2005. *Research methodology.* 3rd ed. Cape Town: Oxford University Press.

World Bank, 2013. *Global Finance Development Report: The role of the state in finance.* [Online]
Available at: https://siteresources.worldbank.org
[Accessed 15 February 2018].

Zeitun.R & Tian.G, 2007. Capital structure and corporate performance: evidence from Jordan. *Australasian Accounting Business and Finance,* 1(4), pp. 40-61.

Zou, H. & Xiao, J., 2006. The Financing Behavior of Listed Chinese Firms. *The British Accounting Review,* 38(3), pp. 239-258.

APPENDIX

A. List of Real Estate Firms

Intu Properties Plc
Hyprop Inv Ltd
Resilient Reit Limited
Redefine Properties Ltd
Octodec Invest Ltd
Sa Corp Real Estate Ltd
Putprop Ltd
Ingenuity Property Inv
Adrenna Property Grp Ltd
Emira Property Fund Ltd
Orion Real Estate Ltd
Tradehold Ltd

B. List of Retail Firms

Pick N Pay Stores Ltd
Woolworths Holdings Ltd
Mr Price Group Ltd
Truworths Int Ltd
Shoprite Holdings Ltd
Clicks Group Ltd
The Spar Group Ltd
Massmart Holdings Ltd
The Foschini Group Limit
Cashbuild Ltd
Advtech Ltd
Italtile Ltd
Combined Motor Hldgs Ltd
African & Over Ent Ltd
Rex Trueform Group Ltd
Nictus Ltd